REMARKS

Claims 1, 4 and 6-9 are pending in this application. By this Amendment, claim 1 is amended to incorporate the features recited in claims 3 and 10 and to correct an informality. Claims 4 and 6 are amended to depend from claim 1. No new matter is added. Claims 3 and 10 are canceled without prejudice to, or disclaimer of, the subject matter that each of these claims recites. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

The Office Action does not explicitly consider added claim 10 added in the April 24, 2008 amendment. Claims 3, 4 and 6 ultimately depend from claim 10. Accordingly, the feature recited in claims 3, 4, 6, 10 and are assumed to be allowable.

The Office Action rejects claims 1, 3, 4 and 6-9 under 35 U.S.C. §103(a) as being unpatentable over HMM Size reduction using MDL Criterion, Japan to Shinoda et al. (hereinafter "Shinoda"). This rejection is respectfully traversed.

The Office Action asserts that Shinoda would have suggested the combination of all of the features positively recited in claims 1, 4 and 6-9.

Claim 1 recites, among other features, setting plural types of the Gaussian distribution numbers from a predetermined value to a maximum distribution number for each of the plurality a plurality of states constituting the HMM and obtaining a set of respective training speech data χ^N by matching in time series a plurality of the training speech data with respective states of an HMM having anyone of the Gaussian distribution numbers from the predetermined value to the maximum distribution number computing a description length for each of the plurality of states each state having the plural types of Gaussian distribution numbers using a Minimum Description Length criterion applied to the data χ^N.

Shinoda teaches at, *e.g.*, page 1, lines 19-29 "[a] method to reduce number of distributions in each state effectively in Gaussian mixture distribution HMM. In this method,

a model having large number of distributions trained with sufficient training data amount is prepared at first, and a Gaussian distribution tree for each state is built. Then a set which makes Minimum Description Length criterion minimum is selected for each state." However, Shinoda would not have suggested setting plural types of the Gaussian distribution numbers from a predetermined value to a maximum distribution number for each of the plurality a plurality of states. Shinoda teaches a model having large number of distributions trained with sufficient training data amount is prepared at first. However, the distributions are trained with data, not set before any training step. Further, Shinoda teaches then a set which makes Minimum Description Length criterion minimum is selected for each state. However, the set is selected after training. Shinoda would not have suggested setting plural types of the Gaussian distribution numbers before matching in time series a plurality of the training speech data with respective states of an HMM having anyone of the Gaussian distribution numbers from the predetermined value to the maximum distribution number. Shinoda merely teaches selecting the Minimum Description Length not setting the Gaussian distribution numbers before training.

Further, claim1 recites among other features, the second term on the right side of the general equation being multiplied by a weighting coefficient α. The Office Action asserts that Shinoda teaches these features on page 3. However, Shinoda teaches at, *e.g.*, page 3, lines 1-11 the third term of Equation 5 is multiplied by a penalty co-efficient α, and at *e.g.*, page 3, lines 3-4 that Equation 5 is an approximation of Equation 4 of Shinoda. Thus, Equation 5 cannot reasonably be considered to have suggested the general equation that computes the description length as recited in claim 1. Accordingly, Shinoda cannot reasonably be considered to have suggested the combination of all of the features positively recited in claim 1.

Claim 4 recites, among other features, in the general equation that computes the description length the third term on the right side being omitted. The Office Action asserts that Shinoda teaches these features on page 3. However, as argued above, Equation 5 cannot reasonably be considered to have suggested the general equation that computes the description length as recited in claim 1. Accordingly, Shinoda cannot reasonably be considered to have suggested the combination of all of the features positively recited in claim 4.

In view of the above, Shinoda cannot reasonably be considered to have suggested the combinations of all of the features recited claims 1 and 4. Further, Shinoda cannot reasonably be considered to have suggested the combinations of all of the features recited claims 6-9 for at least the dependence of these claims on allowable base claims, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejection of claims 1, 4 and 6-9 under 35 U.S.C. 103(a) as being unpatentable over Shinoda are respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 4 and 6-9 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

Daniel A. Tanner, III
Registration No. 54,734

JAO:MIL/add

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OLIFF & BERRIDGE, PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

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